National Weather Service Quad Cities

Weather Home Companion

Volume 2, Issue 2, Fall 2005

INSIDE THIS ISSUE:

New Look for Weather Home Companion

We've made some minor changes to the appearance in this fourth issue of our newsletter. As always, your input is welcome. Please let us know if you have any questions or suggestions for future articles. Contact information can be found on page 8.

- David Sheets, Editor

Record Drought Continues

Barb Mayes

The headline for the summer, especially along the Mississippi River and eastward into Illinois, has been the drought. Rainfall has been consistently below normal since the spring, affecting the growing season in Iowa, Illinois, and Missouri. Combined with an unusual number of days above 90 degrees, the hot and dry conditions allowed crops and vegetation to dry up. Rivers in Iowa remained at near normal levels thanks to abundant rainfall in north central Iowa, but rivers in Illinois have been low throughout the summer and early fall.

Drought stunted ears of corn from field near the NWS Quad Cities in Mt Joy, Iowa. The hot and dry summer resulted in similar conditions across many fields in northwest Illinois and extreme eastern Iowa.

How bad is the drought?

Extreme eastern Iowa and much of northern Illinois remain classified in a D3, or "extreme" drought, which means that those areas are experiencing the worst 2-5% of droughts in the area. Rainfall totals along and east of the Mississippi River are at a record low through September—in fact, rainfall in the Quad Cities was about 15 inches below normal for the year through the end of September. Corn yields, and soybeans to a lesser degree, were down compared to last year, though not as bad as in 1988.

What caused the drought?

This summer's drought can't be blamed on El Niño, global warming, or any other large-scale climate factors. The general weather pattern is what kept

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Meteorologist-In-Charge Steve Kuhl

A New Leader Heads Quad Cities Office

Greetings! My name is Steve Kuhl, and I am the new Meteorologist in Charge (MIC) of our Quad Cities weather forecast office. My wife and I arrived in the Quad Cities area last summer and I began my duties as MIC on June 16, 2005.

I have worked for the National Weather Service for over 13 years and have held a variety of forecast and management positions in New York, Alaska, Montana, and Washington D.C. I began my career in 1992 as a meteorologist intern in Buffalo, N.Y., and served as the Storm Scale Techniques Applications Meteorologist at NWS Eastern

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Drought

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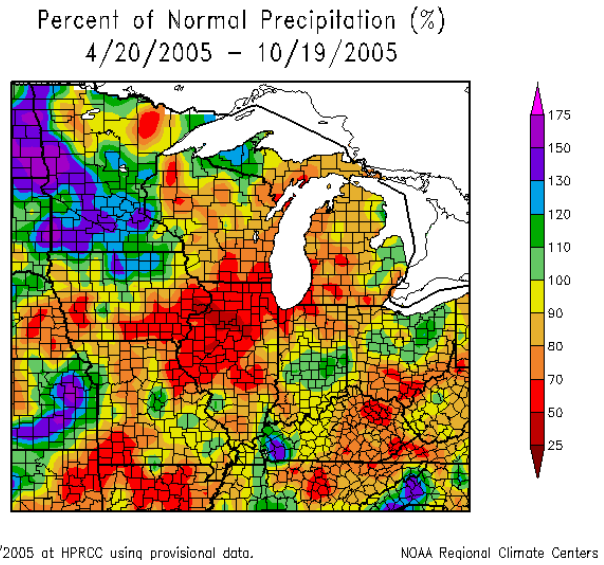
Drought Numbers at Moline

Summer 2005:
Precipitation: 4.70 inches
(13.07 below normal)
Average temperature: 76.1
(2.9 above normal)
Jan. through Sep. 2005:
Precipitation: 14.66
(15.65 below normal)
42 days ≥ 90 degrees
(normal is 22)
Driest on Record

the area dry this summer, with a persistent upper-level ridge across the area that pushed summer showers and thunderstorms to our north and west. That explains why the area in drought is small compared to drought-stricken areas in 1988. In addition, all of the Plains experienced a below-average severe weather season, which carried the mixed blessing of less storm damage but also less rainfall.

What will it take to break the drought?

A consistent pattern of near to above normal rainfall for several months will be the only way to make up the rainfall deficits in the area. Rain and snow totals in the fall and over the winter will tell the tale of how much the area will recover before spring.



New Leader **(continued from page 1)**

"The purpose of the Meteorologist-in-Charge is to serve as the front line officer of a NWS field office…"

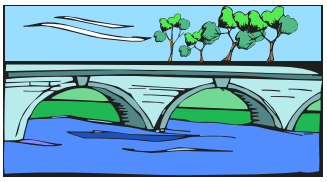
Region Headquarters on Long Island, N.Y. I have also served as the Meteorologist in Charge of the NWS office in Kodiak, AK., and was the Warning Coordination Meteorologist at both the Binghamton, N.Y., and Billings, MT. offices. Prior to coming to the Quad Cities area, I led the NWS' Warning Coordination Meteorologist Program at NWS Headquarters in Washington D.C.

I earned my Bachelor's Degree in geography from Montclair State College in Montclair, N.J., in 1986 and also earned a Master of Science degree in meteorology from Rutgers: The State University of New Jersey in May 1990.

The purpose of the Meteorologist in Charge is to serve as the front line officer of a NWS field office, whose mission is to help protect lives and property from the threat of severe weather. I am honored to be the Quad Cities MIC, especially with the office being located in the heart of the nation, where a lot of good, hard working people depend on timely, accurate weather forecasts and warnings for their businesses and livelihoods. I know our Quad Cities office has a proud tradition of providing great service to the public, and we will do our best to continue to protect and serve our community.

River Forecasts Now at Vinton, Iowa

Jeff Zogg



We at the National Weather Service are always looking for ways to improve services to our customers. In terms of hydrology, we made an improvement to the services we provide people in east central Iowa. In August, we began providing five-day river forecasts for high water on the Cedar River at Vinton. River forecasts will be based upon readings provided by a river gauge at the Vinton power plant and will apply to the Cedar River in the Vinton area.

For the Vinton area, the Flood Stage is 15 feet. Minor flooding also begins at 15 feet. Moderate flooding begins at 18 feet. Major flooding begins at 19 feet.

The NWS will provide river forecasts only when the river stage is above 14 feet or is forecast to rise above 14 feet.

River forecast services in Vinton result from cooperation between the National Weather Service, the Benton County Emergency Management Agency, and the Vinton power plant.

People will be able to find the

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River Forecasts Now at Vinton, Iowa

(continued from page 2)

latest river stage and forecast information directly from the National Weather Service.

These sources include:

Internet: http://weather.gov,

Public text products such as Daily River and Lake Summary, Flood Warnings and Flood Statements, NOAA Weather Radio, and contacting the NWS in the Quad Cities by phone, (563) 386-3976.

At our Web site, you may access the full suite of Advanced Hydrologic Prediction Service (AHPS) products. From our main page, first click on your area of interest on the U.S. map, then click on "Rivers&Lakes AHPS" under the "Rivers & Lakes" section.

River forecasts in Vinton will help minimize losses from floods like this one in Independence, Iowa, in 1999. (Jeff Zogg/NWS Quad Cities)

A full suite of hydrologic products, including the new Vinton gage forecast, are available at our web site. Just click Rivers&Lakes AHPS in the left column.

What is AHPS?

***A**dvanced*

***H**ydrologic*

***P**rediction*

***S**ervice*

Teachers Learn About Water

Ray Wolf

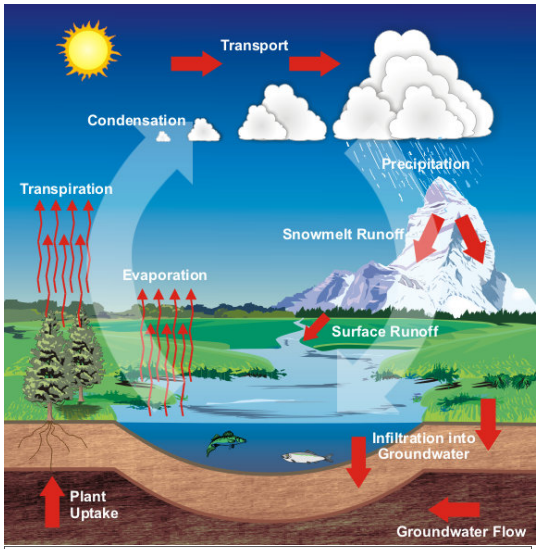
Our office continues its efforts to provide science training for area K-12 teachers interested in learning more about the Hydrologic Cycle. We are teaming with the American Meteorological Society and West Branch Middle School science teacher Hector Ibarra to teach the course "Water in the Earth System".

Eight teachers are participating this fall in the distance learning course. Twelve lessons are provided via the Internet. Hector, Jeff Zogg, our Service Hydrologist, and I serve as mentors, providing the teachers feedback on their weekly lessons and answering their questions.

The distance learning part of the course is supplemented with four meetings which include a tour of our office, the U.S. Army Corps of Engineers Lock and Dam 15 in the Quad Cities and the dam at Coralville Reservoir. One of the meetings also provides hand-on experiments to enrich the learning experience.

The course combines the theoretical background with practical application of how water cycles through the earth system and impacts our daily lives. Teachers can then share this knowledge with the students.

If you are or know a teacher who would be interested in taking this course, contact me (ray.wolf@noaa.gov) and I will provide additional information.



The earth's hydrologic cycle consists of the circulation and conservation of the earth's water.

Additional information for educators can be found at the National Weather Service Online Weather School, called *JetStream*.

To get there, from our website, click on **Science&Ed**, under **Miscellaneous**, then **Jetstream**, under Educational Links. You may also go directly to their web site: www.srh.noaa.gov/srh/jetstream/

Mr. Vanis received his award for 50 years of service at a ceremony on October 24th 2005 at the Civic Center in Central City.

50 Year Award to Central City COOP

Bill Elliott

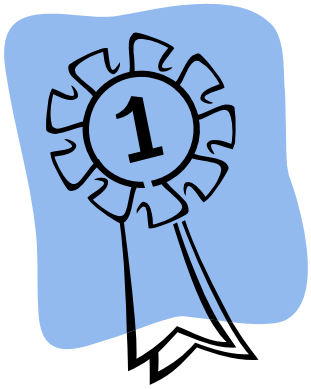
Vincent V. Vanis, Cooperative Observer in Central City, Iowa, was awarded the Edward H. Stoll Award for serving 50 years as a Cooperative Observer. The Award was presented in honor of Edward H. Stoll, who was the Cooperative Observer for over 76 years at Elwood, Nebraska. He was the first to receive this prestigious Stoll Award for 50 years of weather observing. Mr. Vanis received the award at a presentation ceremony held at the Civic Center in Central City on October 24, 2005. A letter from Brig. Gen. David L. Johnson (USAF ret.) , Director of National Weather Service, under the National Oceanic and Atmospheric Administration, stated in part:

"Dear Mr. Vanis: The observations that you have furnished over the past 50 years have made a significant contribution to our knowledge of our nation's, as well as the globe's climate. NWS, research and private sector communities use the observations you and other Cooperative Observers make to help solve problems across the fields of commerce, transportation and agriculture. Your integrity and faithful service contributes to the success of the nation's climate program. Thank you for the important services you provide."

Mr. Vanis has been providing observations to NWS since 17 December 1955.

Award Winning Quality

Bill Elliott



I have been asked by several Cooperative Observers, what we look for when it comes time for Award Nominations. While some Awards are based on Length of Service, every five years, others are based on quality of forms and observations, timeliness, and accuracy.

Two of our Cooperative Observers won National Awards last year, and besides having to have been an observer for 25 years, the items mentioned above were also important in their selection.

On the front and rear covers of each pad of B-91 and B-92 NWS Forms, are instructions for filling out each form. Those are the types of things that count for quality. Is the legend filled out correctly with all the required information? Are the totals added for each column, especially precipitation totals? Is each day's precipitation line filled in, even with no precipitation, zero? Is the form signed and sent to the weather office by the 10th of each month?

Part of my job each month, is to go over every B-91, B-92, and Fischer-Porter tape that is mailed to us. I know when they get here, and what is on each and every form. Some of the forms are so neat, they look as though they were printed on a machine. All of the columns are summed, and the legends are filled out correctly.

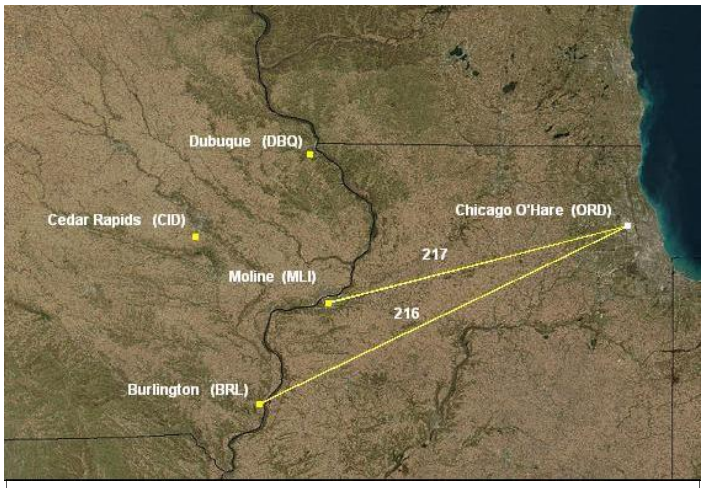
While we realize no one is perfect, we still ask your best when filling out and mailing the observation forms to us. We really appreciate everyone's hard work and dedication, because we know how much effort and pride you put into your observations. If you have any questions concerning your observations or forms, please give me, Mike Zenner or Terry Simmons a call.

Thanks for the wonderful job you do, and keep up the good work!

Aviation Forecasting at NWS Quad Cities

David Sheets

Forecasters at the Quad Cities National Weather Service routinely create forecasts for pilots and airport operators in the forecast area, which includes portions of eastern Iowa, west central and northwest Illinois, and northeast Missouri. These forecasts are different from those you may usually see on our webpage or hear on the radio in that they have information specifically geared toward the needs of aircraft pilots. In addition to the usual information on whether it will be cloudy or sunny, the chances for rain or snow, or what direction the wind will be from, these forecasts also contain specific information about the height of cloud bases and visibility.



National Weather Service Quad Cities prepares Terminal Aerodrome Forecasts (TAFs) for Dubuque, Cedar Rapids, Moline and Burlington. Transcribed Weather Broadcasts are also prepared for routes from Chicago to Moline, route 217 and Chicago to Burlington, route 216.

Knowledge of this information is critical for pilots as it helps them determine if conditions will be safe for them to fly, given their specific skills and the type of aircraft they operate. It also determines where they may fly safely and how much extra fuel they may need to carry. NWS aviation forecasts are used by a variety of aviation customers, including commercial airlines, general aviation pilots, and the military.

There are two types of aviation forecasts we issue here at NWS Quad Cities. One type is the Terminal Aerodrome Forecast, also known as a TAF. These forecasts are written for the four largest airports in our service area, which are Burlington, Cedar Rapids, Dubuque, and Moline. They contain specific forecast information on wind direction and speed, precipitation, visibility, cloud height and coverage, and sometimes, low level wind shear. We write new forecasts for each of these sites four times each day and update them more frequently when needed.

The other type of forecast we prepare is called a Transcribed Weather Broadcast, or TWEB. These forecasts are written for well-traveled flight routes and are used as a briefing tool for pilots and flight planners. Like the terminal forecasts, they also contain information on weather, clouds, and wind, but unlike the terminal forecasts, they are not limited to conditions at the individual airports.

Here at the NWS Quad Cities, we issue 4 of these TWEBs. Two are for the local area within a 50 nautical mile radius around Cedar Rapids and Moline. The other two are for routes between Chicago and Moline and from Chicago to Burlington. Like the TAFs, they are issued 4 times per day and updated when necessary.

Both TAFs and TWEBs are written in specific formats, using a type of short-hand language, which may take some getting used to if you have never seen them before. More information on TAFs, TWEBs and aviation forecasts issued by our office can be found on the main page of our website, under "Aviation" in the "Forecasts" section in the left column. More information on aviation forecasts on a national scale may be found at www.aviationweather.gov .

Aviation forecasting is an important, challenging, and rewarding part of the job for forecasters at the Quad Cities National Weather Service Office.

A typical TAF issued from NWS Quad Cities:

KMLI 121130Z 121212 VRB03KT P6SM SCT250
FM0000 11007KT 5SM BR BKN120
FM0700 10011KT 3SM BR BKN050 OVC100
FM1000 10013KT 2SM -RA BR BKN012 OVC030=

A typical TWEB issued from NWS Quad Cities:

217 TWEB 121402 KCHI-KMLI. ALL HGTS AGL EXC TOPS. KCHI-20E KSQI P6SM SKC...20Z P6SM SCT250. 20E KSQI-KMLI P6SM SCT-BKN200...01Z P6SM BKN120 OVC200 AREAS 5SM BR.

...NWS aviation forecasts are used by a variety of aviation customers, including commercial airlines, general aviation pilots, and the military….

Watch for more information about aviation forecasting at NWS Quad Cities, including a complete decoding of the TAF and TWEB examples on this page, on our web site:

weather.gov/quadcities

River Stage vs. River Depth

Jeff Zogg

Whenever you look at river stage information, you will see a number. For example, you might see that the Mississippi River stage at Rock Island, Illinois, Lock and Dam #15 is 6.4 feet. What exactly does this "stage" number mean? Does it mean that the river is 6.4 feet deep?

"...Many people mistakenly equate stage to depth..."

Many people mistakenly equate stage to depth. In other words, they think that if the river stage is 6.4 feet, then the river must be 6.4 feet deep. This is not necessarily the case.

Water depth refers to the depth of water at a location, whereas river stage may not. We measure the river stage relative to a reference point that we call a "zero datum." The zero datum is at a known elevation above sea level. We set the local elevation to zero at the zero datum, hence the name. Elevations above the zero datum level are positive, whereas elevations below the zero datum level are negative. An elevation at, or equal, to the zero datum is zero. The river stage is a measure of how much the surface of the river is above or below the zero datum. If the surface of the river is above this zero datum, then the river stage is a positive number. If the surface of the river is below the zero datum, then the river stage is a negative number. If the surface of the river is at the zero datum, then the river stage is zero.

We use the zero datum method because we want to provide our customers with a river stage figure that is easier to conceptualize and use. If we did not use the zero datum method, the river stage figures would be much larger. For example, consider the river stage of 6.4 feet we used earlier. If we did not use the zero datum method, then we would report the river stage as 563.5 feet above mean sea level (MSL). This number is considerably larger than 6.4 feet, and may be hard to conceptualize and use. Instead of reporting the river stage as 563.5 ft MSL, we have set the zero datum for the Mississippi River at Rock Island Lock and Dam #15 to 557.1 ft MSL. Then, the reported river stage of 563.5 ft MSL is 6.4 ft above the zero datum, which is the figure you see in our reports.

The river gage on the Iowa River at Iowa City, Iowa, measures the level of the water behind it. (Jeff Zogg/NWS Quad Cities)

We always try to set the zero datum at an elevation such that we would not see a negative or zero river stage. Such elevations may cause confusion. Typically, we try to set the zero datum at least slightly below the river bed. Over time, however, scour may push the river bed elevation to below the zero datum. Then, if the river stage is low enough, we could see a negative or zero river stage. Ideally, the zero datum is several feet below the river bed, to hopefully prevent these problems.

Thus, since the zero datum is normally set to an elevation below the river bed, the river stage in most cases does not indicate the river depth. But even if it did, consider this. Since the elevation of the river bed changes with location even over short distances such as a couple feet, the depth of river changes just as much because it depends on the river bed elevation. Thus, river depth cannot be described by a single number. River depth can vary greatly from locations near the river banks to locations in the middle of the river. And the depth at locations in the middle of the river can vary as well. Thus, river depth is a variable number that is not easily described by a single value.

You can see zero datum elevations for yourself. We put them in our Hydrologic Summary, along with the river stage. You can find the Hydrologic Summary on our Web site. Specific instructions on how to get there can be found on the left.

To get to the Hydrologic Summary on our web site:

1) ***Click on Rivers& Lakes AHPS***
2) ***Near the bottom, click on Text Products, under Hydrologic Resources***
3) ***Click on Hydrologic Summary***
4) ***In this text product, you will find the zero datum elevations for the various gage sites, along with current river stages.***

Winter is Coming – Ready or Not!

Donna Dubberke

It's that time of year again – time to track down the snow shovel, dust off the sleds, and dream about white flakes falling from the sky. Or maybe you don't dream about it - maybe you dread it. Either way, winter will be here before you know it.

Eastern Iowa, western Illinois, and northern Missouri average 20 to 35 inches of snow annually. Many will remember last winter not as much for the snow as for the ice, which can have an even greater impact on our daily lives. Whatever this winter brings, now is the perfect time to get ready.

We hope you have a safe and fun winter!

Preparedness Tips

For yourself, you can:

* Check with your doctor or pharmacist about your prescription drugs. They may increase vulnerability to cold.
* Check on elderly and disabled people living alone. Make sure they are prepared for winter conditions.
* Stock up on non-alcoholic beverages like tea, coffee, hot chocolate and soup.

At your home or business:

* Have your furnace and wall heaters checked by a professional for safety.
* Check all space heaters and keep them away from walls, curtains, and furniture.
* If you have a gas heater or any gas appliances, invest in a carbon monoxide detector. (Carbon monoxide kills about 300 people in the U.S. every year.)
* Replace the batteries in all of your smoke detectors and test the smoke alarms to make sure they work.
* Check the batteries in your NOAA Weather Radio.

Fully check and winterize your vehicle before the winter season begins:

* Give your vehicle a tune-up.
* Check the tires, brakes, and battery.
* Check the heating and defrosting system.
* Check your windshield wipers and keep your washer fluid full.
* Change the anti-freeze, if needed, to protect the engine and radiator from freezing in cold temperatures.
* Keep your gas tank near full to avoid ice in the tank and fuel lines.
* Pack and carry a winter storm survival kit, including:
  * blankets or sleeping bags
  * additional warm clothing
  * a flashlight with extra batteries
  * a first-aid kit
  * a knife
  * high-calorie, non-perishable food such as candy bars
  * a small can and water-proof matches to melt snow for drinking
  * a bag of sand or cat litter
  * a shovel
  * a windshield scraper and brush
  * booster cables

Winter Weather Awareness Dates

Missouri: Nov. 1

Iowa: Nov. 8

Wisconsin: Nov. 7-11

Illinois: Nov. 13-19

Did you know…

A **blizzard** warning is issued when winds of 35 mph or higher with considerable falling and/or blowing snow reduces visibility to 1/4 of a mile or less.

Sign up to be a snow spotter on our web site:

weather.gov/quadcities

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Weather Home Companion

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Successful Open House Held

Steve Kuhl

NWS Quad Cities hosted its first ever Open House on Saturday, October 15, when nearly 400 people visited the office. The open house featured a brief slide show about NOAA's National Weather Service, and the role NWS Quad Cities plays in helping the National Weather Service achieve its mission. Tours of the office operations area and office "weather safety hallway" were also given. There were displays of co-op observation equipment, ASOS wind sensor equipment, doppler radar, upper air balloon, and history of the Quad Cities weather office posters.

The highlight event of the open house featured a special balloon launch conducted at noon.

"I'm very happy with the turnout we had at our open house" said Donna Dubberke, NWS Quad Cities Warning Coordination Meteorologist.

Meteorologist Interns, Mike Bardou (center) and Tom Philip (right), prepare to launch a radiosonde as approximately 150 people look on during a special balloon launch held at the first ever NWS Quad Cites open house.

"Weather is extremely important to people who live in the Midwest. The large number of people who visited us today illustrates the critical role our office has in preparing accurate and timely forecasts and warnings for the public we serve."